

REMARKS

Applicant first thanks the Examiner for the interview graciously granted and held on February 27, 2012.

Applicant has carefully studied the Office Action dated October 25, 2011. The present response is intended to be fully responsive to all points of rejection raised by the Examiner and is believed to place the application in condition for allowance. Favorable reconsideration and allowance of the application is respectfully requested. The present response is made to correct an error in the previously filed response dated January 25, 2012, wherein the claims were unnecessarily limited.

The Application as examined included claims 95, 97, 99 – 103, 105 – 119, 122 – 125 and 127 - 137. Claims 1 – 94, 96, 98, 104, 120, 121 and 126 were previously cancelled. Claims 109, 110, 112 – 119, 125, 127 and 128 were previously withdrawn.

In the response dated January 25, 2012, claims 95, 125, 129 and 130 were amended, and claims 97 and 105 were cancelled. In the present response, claims 95, 125 and 129 are further amended, and claims 138 – 140 are new.

In claims 95, 125 and 129 as presently amended, the nitrogen-containing compound, a salt of the formula $Y^x[NH_2R^3R^4]^+_x$, and the active ingredient of the biocide, a salt of the formula $Y^x[NHR^3R^4Cl]^+_x$, are recited. Support for this amendment can be found in the application as filed on page 3, lines 9 – 28 and page 13, lines 8 – 24. Support for new claim 138 can be found on page 15, lines 5 and 6 and throughout the Examples. Support for new claims 139 and 140 can be found throughout the Examples.

Claims 95 and 129 are further amended to clarify that the biocide is applied to the medium only after the nitrogen-containing compound and the hypochlorite oxidant are mixed. This amendment finds support throughout the Examples, and in particular in Examples 7 and 8.

Applicant again expresses appreciation to Examiner Nathan Schlientz for the courtesy of an interview, which was granted to Applicant and Applicant's representative, Sanford T. Colb (Reg. No. 26,856). The interview was held in the USPTO on February 27, 2012. The substance of the interview is set forth in the Interview Summary.

At the interview, the patentability of the claims vis-à-vis the cited prior art was discussed. The Interview Summary states, in relevant part, “Tsuneki teach that the pH of the composition is 12 or greater, whereas the instant claims recite a pH of 9.5 to 11.5. Therefore, the rejection under §102(b) over Tsuneki is overcome. Applicant argues that their invention requires pre-mixing the hypochlorite oxidant with the nitrogen-containing compound and then adding the mixture to the medium, which is different from Shim. Applicant argues that Shim requires production of the chlorosulfamate product, which is different from the product as disclosed in the instant claim 95.”

Claims 95, 97, 102, 103, 105, 122, 124, 132 and 134 - 137 were rejected under 35 U.S.C. §102(b) as being anticipated by Tsuneki (WO 03/96810, corresponding to U.S. Patent Application Publication No. 2006/0054563).

As stated in the Office Action, Tsuneki discloses a composition having a pH of 12 or greater. Claim 95 recites that the pH of the biocide is between 9.0 and 11.5. Tsuneki does not disclose a biocide having a pH between 9.0 and 11.5 as recited in claim 95. Accordingly, claim 95 is not anticipated by Tsuneki. Claims 102, 103, 122, 124, 132 and 134 – 140 all depend directly or ultimately from claim 95, and are therefore also not anticipated by Tsuneki.

Claims 95, 97, 102, 103, 105, 122, 124, 132 and 134 - 137 were rejected under 35 U.S.C. §102(e) as being anticipated by Tsuneki (U.S. Patent Application Publication No. 2006/0054563).

Applicant maintains that Tsuneki has no §102(e) date since Tsuneki is based on an international application published in a language other than English. Furthermore, Applicant maintains that Tsuneki does not anticipate the presently claimed invention for the reasons stated above.

Claims 95, 97, 99, 102, 103, 105, 108, 111, 122 – 124, 129, 132, 134 and 135

stand rejected under 35 U.S.C. 102(e) as being anticipated by Shim (WO 2005/19117).

Shim discloses, throughout the publication and in particular at page 7, line 25 – page 8, line 21, that the active ingredient formed is chlorosulfamate $[\text{NH}(\text{Cl})\text{SO}_3^-]$, wherein the sulfamate moiety is chlorinated. Shim does not disclose a biocide comprising a salt of the formula $\text{Y}^+[\text{NHR}^3\text{R}^4\text{Cl}]^+$, recited in claims 95 and 129 as presently amended, wherein the ammonium moiety is chlorinated.

Furthermore, presently amended claims 95 and 129 require that the hypochlorite oxidant and the nitrogen-containing compound be mixed before being added to the medium to be treated. In Shim, the components of the biocide are added to the medium separately (see Examples, and in particular Example 5). While Shim does disclose pre-mixing of sulfamate with bromide (claim 3), Shim does not disclose pre-mixing of sulfamate with the chlorine oxidant.

To further support that a person of skill in the art following the teachings of Shim does not, would not and could not pre-mix hypochlorite with a nitrogen-containing compound, we submit herewith a declaration of Inventor Dr. Ayala Barak. As stated in the declaration, premixing of the hypochlorite with the nitrogen-containing compound under the pH and ratio conditions recited in claims 95 and 129 is essential to the invention, since this is what provides the chloroammonium compound as opposed to the chlorosulfamate compound disclosed in Shim. In the present invention, it is critical that the ammonium ion be chlorinated and that the counter-anion contain an oxidizable nitrogen. This oxidizable nitrogen acts to reduce the chlorine in the chloroammonium cation, thus weakening the Cl-N bond and increasing biocidal activity. This effect cannot be achieved when the nitrogen-containing anion is chlorinated, as in Shim.

Shim does not disclose a method of controlling a biofilm comprising mixing a hypochlorite oxidant and a nitrogen-containing compound to form a biocide comprising a chloroammonium salt and then applying the biocide to a medium as recited in claims 95 and 129. Accordingly, claims 95 and 129 are not anticipated by Shim. Claims 99, 102, 103, 108, 111, 122 – 124, 132, 134 – 140 all depend directly or ultimately from claim 95, and are therefore also not anticipated by Shim.

Claims 95, 97, 99 – 103, 105 – 108, 111, 122 – 124, 129, 130, 132 and 134 - 137 were rejected under 35 U.S.C. §103(a) as being unpatentable over Tsuneki in view of Barak (U.S. Patent No. 5,976,386 or U.S. Patent No. 6,132,628). Applicant notes that Barak '628 is a direct continuation of Barak '386 and that the specifications of Barak '628 and Barak '386 are identical. In view of the foregoing, arguments presented to overcome rejections based on Barak '386 also apply to rejections based on Barak '628.

As stated in the Office Action, Tsuneki discloses a composition having a pH of 12 or greater. Claims 95 and 129 recite that the pH of the biocide is between 9.0 and 11.5. Tsuneki discloses at paragraph 81 that the compositions described therein were very unstable at pH 11 and that excellent stability can be obtained at pH greater than 12. There is nothing in Barak that would motivate a person of skill in the art to change the pH of the composition disclosed in Tsuneki from greater than 12 to between 9.0 and 11.5 as recited in present claims 95 and 129.

Accordingly, claims 95 and 129, which recite a biocide having a pH between 9.0 and 11.5 are patentable over Tsuneki in view of Barak. Claims 99 – 103, 106 – 108, 111, 122 – 124, 130, 132 and 134 – 140 all depend directly or ultimately from claim 95. Therefore, these claims are also patentable over Tsuneki in view of Barak.

Claims 95, 97, 99 – 103, 105 – 108, 111, 122 – 124, 129, 130, 132 and 134 - 137 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Shim in view of Barak.

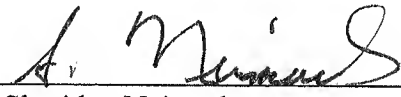
As noted above, Shim does not disclose a method of controlling a biofilm comprising mixing a hypochlorite oxidant and a nitrogen-containing compound to form a biocide comprising a chloroammonium salt and then applying the biocide to a medium as recited in claims 95 and 129. Barak does not provide any motivation to modify Shim to pre-mix the ingredients, as detailed in the above-referenced declaration of Dr. Ayala Barak. Accordingly, claims 95 and 129 are patentable over Shim in view of Barak. Claims 99 – 103, 106 – 108, 111, 122 – 124, 130, 132 and 134 – 140 all depend directly or ultimately from claim 95, and are also patentable over Shim in view of Barak.

In re Appln of Ayala BARAK
Application No. 10/586,349
Supplemental amendment dated March 13, 2012,
in response to OA mailed October 25, 2011

In view of the foregoing remarks, all of the claims are believed to be in condition for allowance. Favorable reconsideration and allowance of the application is respectfully requested.

Respectfully submitted,

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